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ABSTRACT

Several generalizations are made from a review of research findings on teachers' instructional planning methods. Teachers do not, as a rule, follow the advocated model of identifying student outcomes before considering activities or means of instruction. Rather, they focus on content to be taught and the activities in which they will engage the students. Teachers plan these elements around an instructional task. Tasks serve as mental images or scripts which are conceptualized in an abbreviated fashion, which helps to reduce the information processing load of teachers. Once teachers begin lessons for groups of students, they are reluctant to change those lessons, even when instruction and learning are progressing poorly. During interactive teaching, teachers' primary concerns focus on maintaining a flow of activities. There is evidence that teachers work to make the classroom activities very predictable, thus reducing the complexity of the classroom. Maintaining order in the classroom is a major concern of teachers while making decisions both before they teach and while they are interacting with students. Teacher educators need to be aware of the validity of the decision making practices of experienced teachers. Theoretical models can be presented to preservice teachers, but a more balanced view of teacher planning and decision making should be presented. (JD)

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A Synthesis of Research Findings on Teacher Planning And Decision Making

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Students preparing to teach receive abundant information regarding the need for planning. They are taught multiple planning models and they review examples of lesson plans for both long-range and daily use. Most often the approaches they are taught follow a rationale refined by Ralph Tyler (1949) over thirty years ago. This approach advocates deriving student objectives from several sources: the learners' needs and interests, the subject matter or formal disciplines, and societal needs. Because there are potentially more objectives than educators have resources to implement, choices must be made. Tyler suggests using (1) what is known about psychology of learning, and (2) philosophical beliefs about education as "screens" to limit the number of objectives which educators seek to implement. Based upon that delimitation, decisions about specific classroom objectives, selection of learning activities, organization of activities and evaluation of student outcomes would be made by individual teachers. This model is often referred to as the "ends-means" model because of the emphasis on identification of objectives (in terms of student outcomes) before considering the activities for students or "means" of instruction.

The Tyler Model has had a pervasive impact on teacher education. A review of current methods books indicates that several chapters in each book are devoted to planning using the "ends-means" approach. For instance, Henson (1983) devotes three chapters to planning and divides the task into long-range and short-range planning. Both planning foci begin with "objective" setting followed by decisions about "materials" and "learning activities." The "selection of a topic" is the initial step listed in Callahan and Clark (1977). This is followed by "selection of general and specific objectives." Determining the learning activities is the fourth step listed. Kim and Kellough (1983) begin with the "determination of objectives" followed by the "development of learning experiences for students." In their methods book Armstrong and Savage (1983) suggest that teachers should "diagnose student needs before" selecting content and "objectives."

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Despite the emphasis given in teacher education to the "ends-means" approach, there now exists much evidence which indicates that experienced teachers don't begin the planning process by determining objectives. Most researchers conclude that teachers begin the planning process by determining the content to be covered and then design or select learning activities for students (Zahorik, 1975; Walter, 1979; Shavelson & Stern, 1981).

With the emphasis given in methods texts and courses to an "ends-means" approach to planning, why don't teachers follow this systematic, behavioral model? Simple explanations may suggest that teachers need more time for planning, fewer preparations or improved instructional resources, but before one can describe reasons teachers make the decisions they do, more should be known about the decision-making processes teachers use. The remainder of this paper provides an overview of research on teacher decision making with attention given to decisions teachers make before they teach and decisions they make while they are engaged in interactive teaching.

Clark and Joyce (1981) developed a model for studying the types of decisions which teachers make. They used Hunt's Model, which was designed to construct a network of teaching decisions, to organize and interpret data from their study. They grouped decisions into: (1) selecting and clarifying objectives; (2) identifying components of learning styles; (3) selecting appropriate learning environments; and (4) initiating, maintaining and adapting learning environments. The categories were considered to be a beginning in developing a comprehensive taxonomy of teacher decision making which considers the multitude of variables teachers encounter in executing their responsibilities.

To better understand the processes of decision making that teachers use, Shavelson and Stern (1981) considered how humans, in general, process information. They concluded that (1) persons' abilities to process information from their environments are limited, and (2) people tend to process information in a sequential, step-by-step fashion.

> As a consequence of these information processing limitations, people selectively perceive and interpret portions of available information with respect to their goals, and construct a simplified model of reality. Using certain heuristics, attributions and other psychological mechanisms, people then make judgments and decisions and carry them out on the basis of their psychological model of reality (Shavelson and Stern, 1981, p. 461).

As a reference to guide the understanding of research on teacher planning and decision making, Clark and Joyce (1981) suggested that answers to four questions are in order. (1) What are teachers' thoughts as they are planning to teach? (2) What thinking behaviors are present while teachers are teaching? (3) What are the behavior patterns teachers manifest during interactive teaching? and (4) What do students learn as a result of the transactions (listed in 1-3)?

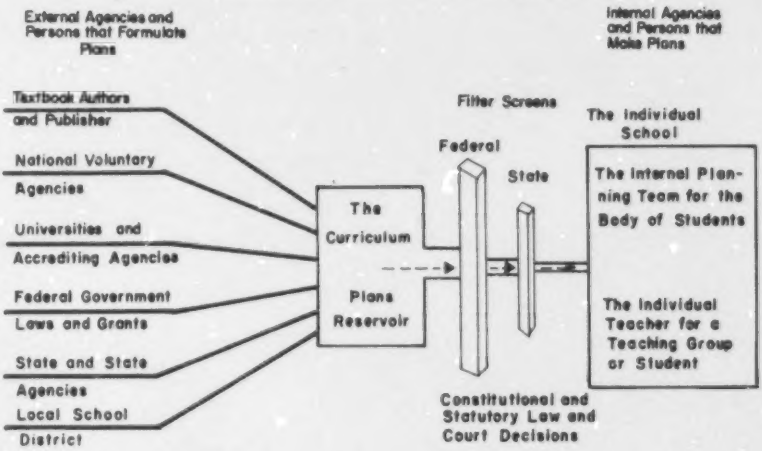
Planning Decisions Before Teaching

Teachers participate in planning for teaching at a variety of levels. They serve on district-level curriculum committees to assist with the planning of formal curricula. Additionally, they do individual long-range planning, usually at the beginning of the school year, for classes they are assigned to teach (Shavelson 1981). This long-range plan includes decisions about students as well as activities, goals, major projects and general requirements for the year. Units of study, which may take several weeks to complete, are planned during the course of school year as are weekly plans, such as those found in teacher planning books. Of course teachers do daily planning, too. Inexperienced teachers do far more daily planning than those who are experienced.

District-level involvement by teachers is well documented. Such participation is generally viewed as critical for successful curriculum change to take place, although too frequently, teachers are asked to do curriculum work after teaching a full day in the classroom. Determining the appropriate amount of teacher involvement in curriculum planning is dependent upon many variables. Schaffarzik (1976) concluded that school districts use a wide variety of models to make curriculum decisions and both teacher and citizen participation has increased in recent years; however, he also reported that their involvement may be somewhat superficial with major decisions still being made by higher authorities. He urged better mechanisms and forums for teacher and citizen participation. Tibbetts (1979) reported on the consequences when teachers lose decision-making power and are required to blindly adhere to prescribed programs imposed from outside. She concluded that this loss of autonomy leads to decline in teachers' interest with a consequent loss to the students.

Saylor (1982) outlined the major influences on teachers in a model he entitled, "The Curriculum Plans Reservoir." In that comprehensive model, he defined curriculum as "a plan for providing sets of learning opportunities for persons to be educated" (p. 2). He stated that it is the teacher "who is guiding and directing the organized learning activities of students in a school setting as the ultimate curriculum planner" (p. 2). As the teacher carries out this complex task, a number of significant and powerful groups and agencies influence the types of decisions that teachers make. Saylor described external and internal agencies who formulate guidelines as two categories of major influences on teachers. Figure 1 illustrates these agencies and shows roles played by federal and state government. The chapters in the Saylor reference outline the contributions made by each agency and the nature of their influence. The "curriculum reservoir" is drawn upon by the teacher for guidance and help and, in some instances provides mandated programs which must be followed.

Figure 1 - THE CURRICULUM PLANS RESERVOIR


External Agencies and Persons that Formulate Plans
Internal Agencies and Persons that Make Plans
Textbook Authors and Publisher
National Voluntary Agencies
Universities and Accrediting Agencies
Federal Government Laws and Grants
State and State Agencies
Local School District
The Curriculum Plans Reservoir
Filter Screens
Federal
State
Constitutional and Statutory Law and Court Decisions
The Individual School
The Internal Planning Team for the Body of Students
The Individual Teacher for a Teaching Group or Student

From Saylor, 1982, p. 3

The long-range planning that teachers do early in the school year has a profound impact on their decisions for the remainder of the year. Teachers make decisions about content, activities, groupings of students, major projects, grading schemes and rules for student behavior in these early plans. Shavelson and Stern (1981) pointed out that, unless researchers carefully examine planning which teachers do early in the year, important aspects of the decision-making process will be missed. Marx (1981) also concluded that the number of decisions which teachers make decrease as units they are teaching progress. From this research, it appears that the number of decisions and the impact of those decisions tends to diminish as the school year progresses.

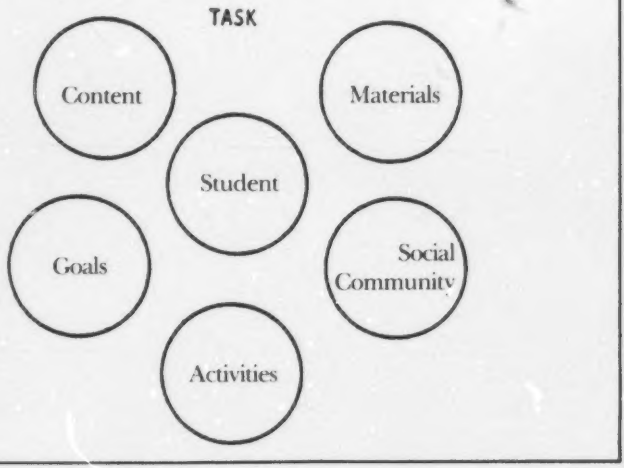
Considering information about students is most prevalent in decisions made early in the year. Shavelson and Stern (1981) reported that during the early part of the school year teachers are "getting to know" their students and once teachers reached a judgment, less attention is given to students while planning. Most attention to students' needs was focused on a group of students with little attention paid to individuals within the group or their needs (Clark & Peterson, 1976; Shavelson & Stern, 1981).

Research studies on short-range decisions which teachers make before teaching specific lessons have used a technique called process tracing (Shavelson & Stern, 1981). Teachers are asked to "think out loud" into a tape recorder while planning lessons or solving an instructional problem. Clark and Joyce (1981), in describing findings of several authors who used such techniques, concluded that few teachers, without formalized training, establish objectives before teaching. Instead they rely on instructional materials for selection of method, content and learning activities. Shavelson and Stern (1981) reported that teachers begin planning by identifying tasks or instructional

treatments for students. These tasks are developed into instructional activities which serve as the unit of planning and action in the classroom.

To avoid confusion, a learning activity will be referred to as an instructional task—a building block in the curriculum. Tasks consist of several elements (see Figure 2). *Content* is one of the most important elements and teachers consider the textbook as the major (and usually only) source of content. A second element is the *materials* used to teach the task. The *activity*, the third element, consists of the things teachers and students will do in the task. *Goals* are a fourth element. These are not stated behaviorally but are general statements of student outcomes. A fifth element is the *student*. Consideration is for the group of students (Shavelson & Stern, 1981). Teachers use these tasks as mental images or "scripts" to guide their behaviors during interactive teaching.

Figure 2 - ELEMENTS IN A TASK



From Shavelson and Stern, 1981, p. 478
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Most research on teacher planning abilities has been descriptive. It has focused on exposing differences between theoretical planning models and the practical experience of teachers. McNergney and others (1983) have developed a process to assess teachers' planning skills. The assessment tool is variation of the "in basket" technique developed to assess administrative abilities to make planning decisions. Using a multiple choice format, the researchers designed an instrument to assess teachers' abilities to apply professional knowledge. Such a tool has great potential for teacher educators as they work with teachers to improve planning abilities.

Teacher Decisions While Teaching

Decisions which teachers make while they are teaching are referred to as *interactive decisions*. Measuring these "on their feet" decisions is usually done using a process called stimulated recall. Clark and Peterson (1976) used this process to determine what teachers thought about while teaching.

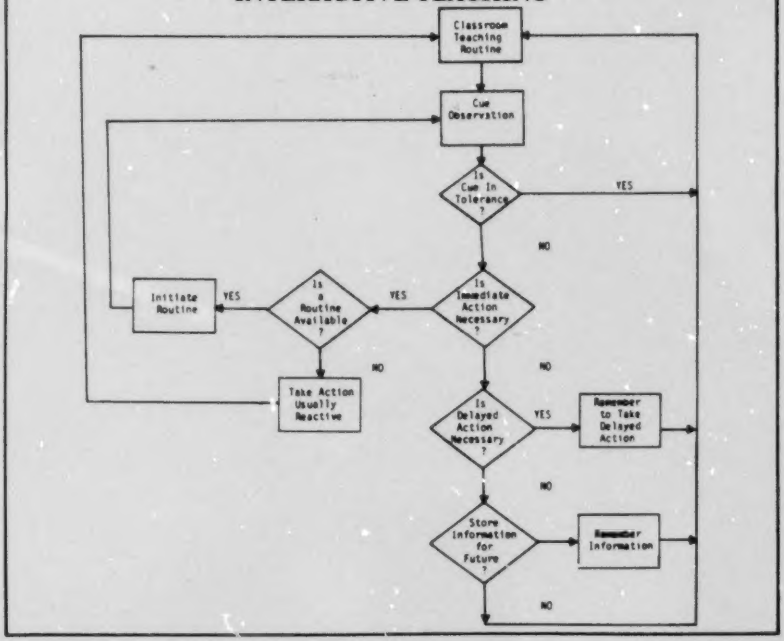
Conceptualizing teaching as clinical information processing, Clark and Peterson viewed the teacher as the information processor. The model that they developed centered on the teacher's ability to observe changes in student behavior and make judgments about the changes which were occurring.

Clark and Peterson hypothesized that teachers would use information gained by reading student cues to make decisions changing their teaching performances. The study was conducted to gain information on the correspondence between their model and how teachers processed information while teaching. They studied twelve experienced teachers in a laboratory setting teaching social studies lessons to groups of eight junior high students. After the lessons were taught, the researchers used a stimulated recall technique to gain insight into teachers' thought processes while teaching. Teachers were shown video tapes of the lessons and asked a series of six questions. The questions were designed to elicit information in correspondence with the model the researchers had constructed.

Based on the results of the study, Clark and Peterson concluded that: (1) teachers considered alternative plans only when the instructional process was going poorly; (2) the involvement of the students and student participation were the principal cues teachers used to determine the adequacy of the instructional process; and (3) teachers rarely changed their plans, even when the instructional was going poorly. Joyce and Brown (1981) also have concluded that teachers change their routines only when things are going exceedingly bad.

In their landmark review of research on teacher decision making, Shavelson and Stern (1981), as noted above, developed a model of teachers' decision making during interactive teaching (see Figure 3). In developing the model they concluded that the instructional tasks serve as "scripts" for carrying out interactive teaching. Teachers are primarily concerned with maintaining a constant flow of activity to prevent classroom management problems. They concluded, as did Clark and Peterson (1976), that teachers are very reluctant to change from their tasks or routines. To consider changing routines increases the information processing load for teachers and increases the probabilities for classroom management problems. Teachers seem to make few decisions to change their teaching behavior during interactive teaching (Clark & Peterson, 1976). It is estimated that teachers make between 9 and 13 decisions per hour of instruction. When they do change, few alternatives are considered before a decision is made (Shavelson and Stern, 1981).

Figure 3 - MODEL OF TEACHERS' DECISION MAKING DURING INTERACTIVE TEACHING



From Shavelson and Stern, 1981, p. 483

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Whether, as teachers gain experience, they become more skilled in handling the information processing load and making decisions during interactive teaching, was the focus of research conducted by Fogarty, Wang and Creek (1983). Their study focused on the student performance cues which led to teachers' implementation of instructional action, the instructional actions employed, and instructional goals and other information teachers considered during the instructional process. Using three experienced elementary teachers (average of 10.1 years of experience) and five inexperienced interns, the researchers used stimulated recall to collect data on "decision points" which the researchers had identified in each teaching episode. They also developed a system to classify the student performance cues and the instructional actions teachers used.

Fogarty et al. concluded that differences between experienced and novice teachers were apparent and centered on the failure of the novices to implement as large a variety of instructional actions in response to student performance cues. Novice teachers had a lesser tendency to consider prior knowledge about subject matter content, student history and pedagogical principles during instruction. A wider variety of instructional goals were also

considered by the experienced teacher. Care must be taken in generalizing these results because of the small number of participants in the study; however, the scheme for classifying student performance cues and subsequent instructional actions by teachers, is a definite contribution.

As they are teaching, teachers try to balance multiple goals, both academic and classroom management, to maintain a flow of activity and social organization. In reaching a balance, some teachers emphasize classroom management, others provide greater emphasis on academic learning. Management of learners is a major concern of teachers as they plan the instructional task. As the teaching routine is being carried out, teachers monitor student behavior. Usually, only when students are not participating or there is an unusual amount of unacceptable behavior, do teachers change their routines. It is possible that teachers, in some cases when things aren't going well, choose to deal with a problem later in future lessons. The paper by Vasa (1984) (this volume) on classroom management research, explores more completely the relationship between management of learning activities and the management of learners.

Summary of Major Findings

From the research reviewed for this paper several generalizations can be made. Teachers do not follow the "ends-means" planning models advocated by Tyler (1949) and many others. Rather they focus on content to be taught and the activities in which they will engage students. Teachers plan these elements around an instructional task. Tasks serve as mental images or scripts for teachers. These scripts are conceptualized in abbreviated fashion which helps to reduce the information processing load of teachers.

Once teachers begin lessons for groups of students, they are very reluctant to change those lessons, even when things are going poorly. Teachers use cues from students, in the form of participation and appropriate behavior, to judge how well lessons are progressing. When changes are made in lessons, they usually are minor modifications or "fine tuning." During interactive teaching, teachers' primary concerns focus on maintaining a flow of activities. There is evidence that teachers work to make the classroom activities very predictable, thus, reducing the complexity of the classroom. Maintaining order in the classroom is a major concern of teachers while making decisions both before they teach and while they are interacting with students.

Implications for Teacher Educators

1. Teacher educators need to be aware of the decision-making practices of experienced teachers. The planning models which experienced teachers use should be considered valid for the contexts in which teachers find themselves. The theoretical models can still be presented to preservice teachers

but a more balanced view of teacher planning and decision making should be presented.

2. Because of the impact of planning done early in the year on subsequent decisions and activities, teacher educators should provide more emphasis on long-range planning. Instructors of methods courses may need to change their focus from unit planning to longer range, yearly planning activities for their students. Many of these decisions, such as grouping of students, establishing course requirements, grading schemes and developing management schemes appear to be made most effectively early in the year. Knowing this before they start would help beginning teachers to a more successful start in the first year of teaching.

3. Research on teacher planning demonstrates that teachers develop a series of instructional tasks which serve as scripts for them as they interact with students. More attention should be given to assist beginning teachers in developing high quality tasks for their initial lessons as they begin to teach. Efforts need to be made to find better ways of helping teachers develop a wide repertoire of "scripts," so that during interactive teaching, teachers have a range of alternatives to consider when the activities are not successful with a group of students and so that teachers can seek to optimize their instruction.

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